Improving Indonesian Construction Consulting Services*

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Abstract. Indonesian construction consulting services are facing a complex problem in fulfilling the nation's expectations regarding high quality infrastructure development and the construction industry's competitiveness. A study of this problem and a formulation of solutions to improve the situation are presented in this paper. A survey was carried out in Jakarta, West Java, East Java, and North Sumatra provinces to collect data related to this problem. A focus group discussion and a workshop with all stakeholders were conducted to formulate improvement actions that need to be taken. It was revealed that the problems faced include, among others, the limited number of professional engineers compared to the number of national consultancy companies, the uneven distribution of engineers in Indonesian regions, an imperfect procurement system, and low-quality work output in general. Recommended actions include improvement of the government's role in consulting services nurturing and facilitation, development of partnerships, and amelioration of the professional engineer and consultant certification system.

Keywords: *competitiveness; construction industry; consulting services; performance improvement; professional engineers.*

1 Introduction

While lack of infrastructure availability in Indonesia has been mentioned as one of the main obstacles of national development, the construction industry plays an important role in economic development. It contributed, in 2012, 10.5% of Gross National Product, grew 6.2%/year and provided 5.3% of jobs to the national work force. A strong and reliable construction industry is highly needed to support infrastructure development. Engineering consultants and professional engineers play an important role in this development.

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The importance of engineering consultants' service is described by Tang, *et al*. [1], among others, who state that engineering consultants can be considered as middlemen conveying clients' requirements to contractors, who in turn deliver the final product back to the clients and that, therefore, the quality of service provided by design organizations plays an important role in the successful execution of any engineering project. Tang, *et al*. [1] further mention that poor quality in design can result in increased project costs. In Indonesia, as a matter of fact, 70-80% of infrastructure added value can be expected to come from good engineering design and construction supervision. In the construction stage, the engineer plays the role of conductor of the project, creating a good working atmosphere and harmony, not only with his client but also with all other stakeholders.

Moreover, engineering consulting services' performance has a significant influence on the construction industry's competitiveness. Shi, *et al*. [2] state that full capacity of competitive consultants underscores a sustainable growth of the construction industry. Citing Ng & Chow [3], Chow & Ng [4], and Betts [5], it is further mentioned that recent years have witnessed special academic attention given to the evaluation of engineering consultants' capabilities, the performance of engineering consultants, and sustainable competitive advantages of project management consultants.

Tamin [6] indicates that, despite high expectations and important challenges, the Indonesian construction industry is in an unfavorable condition. Low competitiveness marked by low quality and productivity and a high construction accident rate are among the main problems to be faced. The insufficient performance of engineering consulting services is deemed significant in causing this situation.

This research is carried out to assess the current situation regarding consulting companies, engineers' performance, and causes of low quality in consulting work in Indonesia. Furthermore, suggested improvement solutions are formulated to develop the capacity of consulting companies, engineers, and, consequently, the country's construction industry's competitiveness.

2 Methodology

A comprehensive research approach has been adopted to obtain an accurate description of the real consulting companies' and engineers' performance. A literature study on consulting services' performance has been carried out to gain a wide perspective on the parameters to be evaluated.

The focus on factors that influence competitiveness is inspired by Porter's single diamond model (see Figure 1). This model comprises six broad factors for the analysis of competitiveness [7], i.e.: 1) Factor conditions (human resources, physical resources, knowledge resources, capital resources and infrastructure; 2) Demand conditions; 3) Related and supporting industries; 4) Firm strategy, structure and rivalry; 5) Government that can influence the supply conditions of key production factors, demand conditions in the home market, and competition between firms; 6) Chance events.

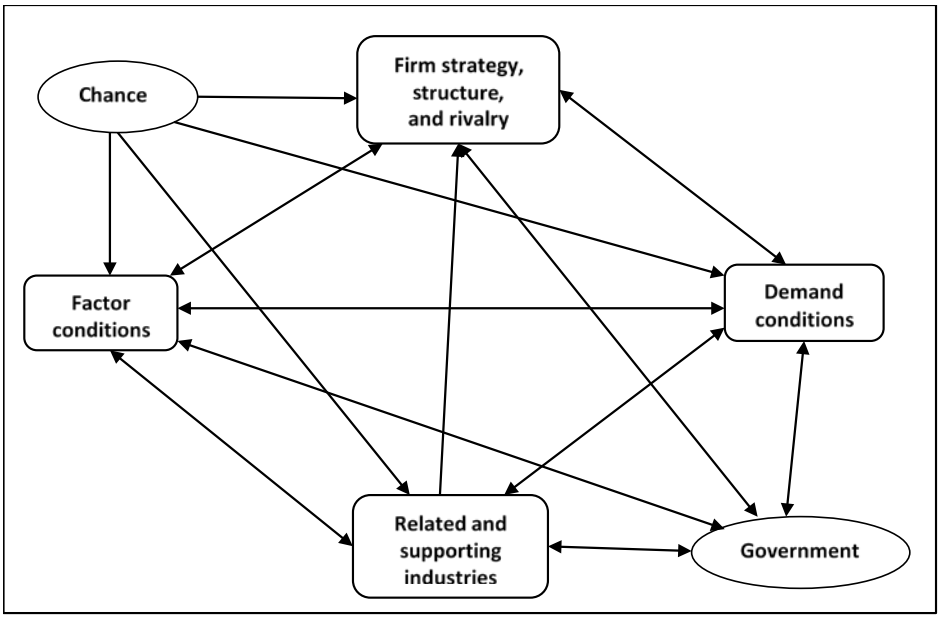


Figure 1 The Single Porter Diamond [7].

Moreover, the importance of collaboration or synergy between a consulting company and the other actors in a construction project, which will drive creativity and innovation, is also considered in the analysis. With regard to synergy, Syntec-Ingenierie [8] state that relations between clients and suppliers on the one hand, and between the various actors (engineers, architects, contractors, operators) on the other, should be re-organized for sustainable partnerships and improved integration of the roles of the actors (convergent process).

Besides collecting secondary data as basic information from various sources, analyzing public works' infrastructure implementation reports, and conducting a workshop and focus group discussions (FGD) with stakeholders, primary data were also collected to complete and confirm the validity of the information

gained from a questionnaire survey distributed to consultancy companies and owners, interviews, and site visits to samples of consultancy companies.

Secondary data on consulting companies and professional engineers were offered by:

a. Consulting companies and their associations, including Ikatan Konsultan Indonesia (INKINDO), Persatuan Konsultan Indonesia (PERKINDO), and Asosiasi Konsultan Indonesia (ASKONI).
b. Professional associations, such as Himpunan Ahli Konstruksi Indonesia (HAKI), Himpunan Pengembang Jalan Indonesia (HPJI), Persatuan Insinyur Indonesia (PII), and Persatuan Ahli Teknik Indonesia (PATI).
c. Related institutions, comprising the Construction Service Development Board (buffer body) both on national and regional levels (Jakarta, West Java, East Java, and North Sumatra provinces).
d. The Ministry of Public Works.

Meanwhile, primary data were collected through:

a. Interviews with respondents representing the abovementioned institutions.
b. Questionnaire distribution to consulting companies in a survey on consulting services' condition.
c. Questionnaire distribution to units of the Ministry of Public Works (clients/ owners) in a survey on consulting services' performance.
d. Real physical condition survey on samples of consulting companies by directly visiting their offices in the provinces of Jakarta, West Java, East Java, and North Sumatra to confirm the existence of the companies.

The research at the primary stage was conducted in Jakarta and West Java provinces, and later extended to East Java and North Sumatra provinces to gain a more accurate perspective and conclusion. The following sections present the research results and analysis of situations revealed by the research as well as suggested improvement actions.

3 Problems Faced by National Engineering Consulting Companies and Professional Engineers

3.1 Basic Regulation and Government's Role in the Development of Construction Services

The development of the Indonesian construction industry has been carried out based on Act No. 18, 1999. The general objective of this law is to establish a strong, reliable, and competitive business structure. Unfortunately, the law contains at least 5 unusual conditions, i.e. regulating the construction business

and the engineering profession in the same Act; regulating construction business fields based on scientific fields instead of CPC/ISIC; establishing the Construction Service Development Board (CSDB) as a totally private institution; authorizing professional associations to deliver professional certificates and licenses to work; and authorizing contractor/consultant associations to certify institutions and deliver licenses to work. This situation has hampered the development of the construction industry and its competitiveness.

The survey results described in the following sections reveal that good nurturing from the government to strengthen consulting companies is lacking. Moreover, a special policy to advocate small and local consultancy companies as well as to encourage partnerships between them is still to be formulated. Advocacy actions could actually take the form of special facilitations such as credit facility, bond and insurance offers, and engineers as well as management training.

3.2 Existing Distribution of Companies in Consulting Services

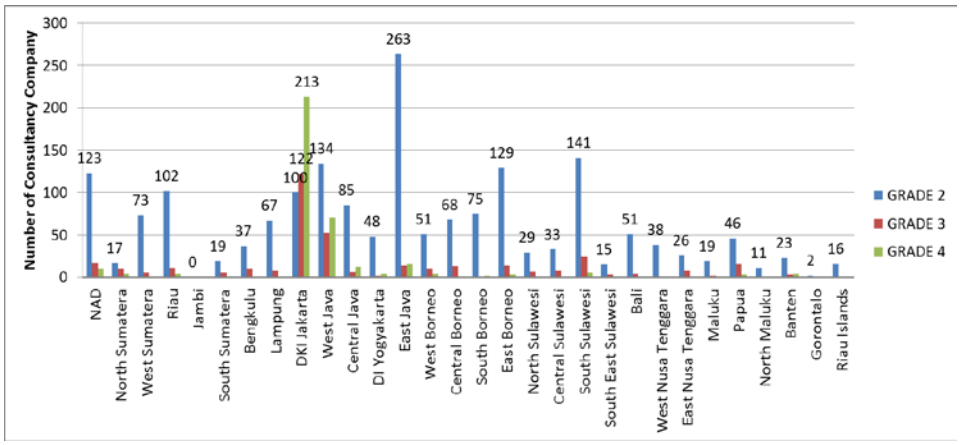
According to the National Construction Service Development Board (NCSDB/LPJKN) there are four grades of consulting companies' qualifications: Grade 1 – individual consulting company, Grade 2 – small consulting company, Grade 3 – medium consulting company, Grade 4 – big consulting company. There are, nationally, around 7,078 consulting companies with the following distribution: 1% Grade 4, 10% Grade 3, and 89% small companies (Grade 1 and 2).

Medium and big consulting companies (Grade 3 and Grade 4) have a tendency to be centralized on Java and mainly in the provinces of Jakarta and West Java (see Figure 2). 46% of Grade-3 consulting companies and 80% of Grade-4 consulting companies operate in these provinces. Some Grade-3 consulting companies operate in various provinces' capitals or regional development centers. The rest of the consulting companies are distributed mainly among regions where infrastructure construction projects are located. 15% of Grade-2 consulting companies, for example, operate in the provinces of East Java and North Sumatra.

There are apparently no collaborations between big and small consulting companies nor between companies domiciled in the Province of Jakarta and other regional provinces. These collaborations will be much needed in the future as driver of creativity and innovation for the sake of added value.

In the last 5 years, the number of consulting companies in the Province of Jakarta – the capital of Indonesia – tends to decrease, while in the Province of

West Java – although it is low – the number is relatively stable, with a slight tendency to decrease. Almost the same situation appeared in the 2 other regional provinces, i.e. East Java and North Sumatra, affected by the same decentralization policy. Moreover, visits by surveyors to 142 consulting companies shows that 57 (40%) of the office addresses were not valid, 28 (20%) companies had moved to another address, and only 57 (40%) of the addresses were still valid. These data indicate an unhealthy situation, where some companies are inactive and have not been seriously developing their business. The trend of interest decrease toward the consulting business, while in the meantime the state budget is increasing, could indicate that this business is not quite attractive at the moment. The following sections describe the conditions that could cause this situation.



Source: Inkindo, 2011

Figure 2 Distribution of National Consulting Companies.

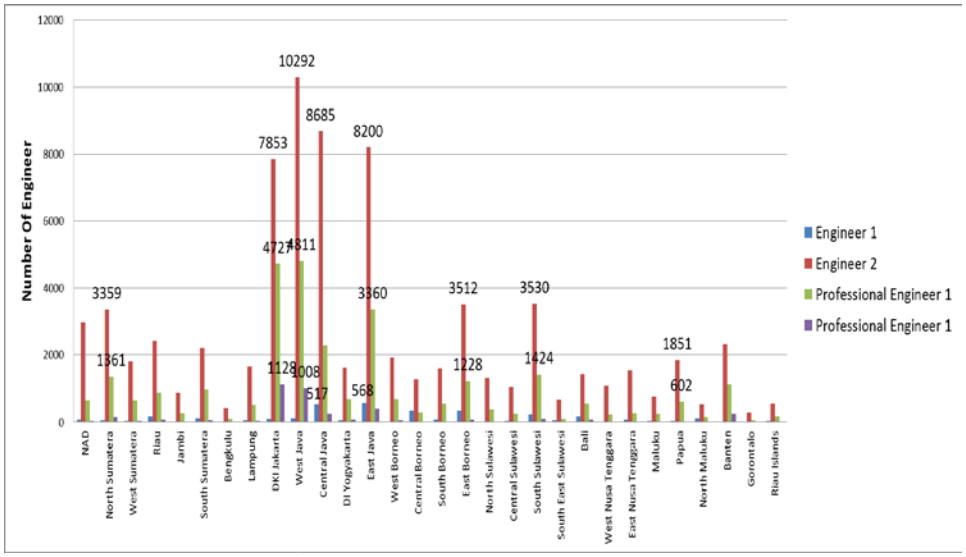
3.3 Availability of Engineers

There are currently 620,000 people who hold a bachelor's degree in construction services. Among them, only 103,000 are certified, including starting engineer or engineer 1 (5%, i.e. 5,150 people), junior engineer or engineer 2 (69%, i.e. 71,070 people), professional engineer 1 (24%, i.e. 24,720 people), and senior engineer or professional engineer 2 (2%, i.e. 2,060 people).

The number of professional engineers (around 26,780) is in fact quite small compared to the number of engineering consulting companies (around 7,078). Moreover, not all of these professionals work in consulting companies. Many of them work in other fields of construction services as well as in government offices, institutions, and local governments. There is also a large gap between the number of senior or professional engineers and junior engineers.

Consequently, consulting engineers working in construction consulting projects often do not meet the requirements stated in the terms of reference. Moreover, it appears that many design and supervision consulting companies do not have permanently employed engineers. Therefore consulting companies' seriousness in developing their business may be questionable, as most of their engineers are not permanent employees.

Existing engineers are not evenly distributed over all regions of the country. Figure 3 shows this distribution. Senior or professional engineers and engineers are generally concentrated on Java, mainly in the Jakarta and West Java provinces. 32% of engineers and 53% of professional engineers reside in the Jakarta and West Java provinces. These categories of engineers are lacking in other regions' consulting companies. This situation has a direct implication for infrastructure construction quality in each region.



Source: Inkindo, 2011

Figure 3 Distribution of Engineers.

3.4 Consulting Company Certificate (SBU) and Professional Engineers' Certificate (SKA)

Shi, *et al*. [2] mention the need for technical accuracy and overall quality of people to achieve competitiveness of the construction consulting business. In the same work it is also stated that in a broader angle, citing the study done by Ng and Chow [3], consultants are suggested to have technical capabilities, management capabilities, financial capabilities, and quality assurance and control competency.

In Indonesia, consulting companies are required to have a Consulting Company Certificate (SBU), which is meant to guarantee a company's capability or competence. However, in reality the SBU is not very useful and does not reflect the real competency of consulting companies. Basically, the core of a consulting companies' competency lies in their engineers. In many countries including ASEAN countries (Singapore, Thailand, and Malaysia), certificates of competency are given to engineers instead of to consulting companies. Consultant company quality certificate, such ISO, is normally voluntarily obtained. Moreover, international best practices have set a simpler categorization of engineers' qualifications, i.e. engineers and professional engineers, so that there is more flexibility in providing the required experts for construction projects.
Actually, construction consulting companies in Indonesia still face difficulties in employing professional engineers, mainly due to the low interest of professional engineers to work in consulting companies which is related to low billing rates.

3.5 Engineer's Billing Rate

According to Singer & Adkins [9], expectations and rewards are important factors in understanding the behavior of individuals and are basic to providing insight into what motivates the creative professional to work with vigor. In the case of engineers one of the most significant rewards is their remuneration, which is normally paid according to the prevailing billing rate.

In Indonesia, the engineers' billing rate is not specially regulated and instead there are at least 3 references serving as basis for billing rate determination, i.e. BAPPENAS (the National Planning Agency) and the Minister of Finance's Regulation in 2000, Minister of Public Work's Regulation in 2007, and INKINDO's Proposal in 2011. Meanwhile, the Procurement Regulation in 2010 stated that billing rates could follow prevailing appropriate market rates. The implementation of these regulations are constrained as consulting companies are required to show engineers' audited payroll document and proof of revenue tax payment during negotiations with clients while they do not have permanently employed engineers.

In general, for consultancy the previous year's billing rate is used. Some consulting companies also dare to offer an 80% billing rate to increase the possibility of obtaining a project. Consequently, their contract value remains low. With low rates they cannot retain good engineers and improve their company's performance. Moreover, qualified graduates from good universities

waive these public works services and prefer to enter more rewarding areas such as the oil and gas industry.

3.6 Construction Service Procurement

A national electronic construction service procurement has been established to enhance the transparency and accountability of the public procurement process. In general, technical capacity is considered more important than financial capacity in the consulting company selection process. The electronic procurement system is expected to offer quicker information access, a shorter tender period, and lower overhead costs. However, due to a limited human resources capacity, the system has not yet met the expectations. Consulting companies often have difficulties in accessing and downloading documents in the system. Moreover, work information is still given off-line in the procurement process. Besides, absence of real-time control is deemed to cause lack of process transparency. An in-depth analysis has to be carried out to improve the existing system and to create a more appropriate electronic construction service procurement system.

3.7 Construction Service Contract Execution

Several problems, especially with regards to engineers' payment, are still faced by consulting companies in executing work contracts. In a fiscal year based contract system, where project preparation and procurement could take four to six months, engineers are only paid for 6 months work, as generally requested by the service's terms of reference and this condition burdens the companies financially as they have the obligation to cover a whole year's overhead. Moreover, low engineers' billing rates and owner's estimates result in low contract value and, in turn, small profit margins. Consequently, companies have difficulties in attracting professional engineers, improving competence, producing high quality output, and making company development efforts. Job satisfaction of engineers is generally low and they have to work for several projects simultaneously. Engineer requirements in a contract are often unfulfilled. Sub-contracting and low billing rates have hampered construction companies' efforts for development.

3.8 Communication and Business Growth

Schon [10], cited by Nikolova [11], mentions that client-consultant interaction is the most important factor for the success of consulting projects and, consequently, for the survival of every consulting company. In this regard, efforts have been made by consulting companies to establish good

communication with their clients for project completion facilitation and to initiate further collaborations in new projects.

Our survey indicates that some consulting companies seem to have a quite high rate of success in project tenders. In public procurement, there are, for example, on average more than 10 projects per year offered by each work unit of the Ministry of Public Works. For each project, usually around 15 companies submit their bids. Certain companies obtain contracts for more than one project per year. The majority of these successful consulting companies submit tenders for more than 12 projects per year and succeed to win 7-9 tenders as main consultant and 2-3 as sub-consultant.

Considering the high number of consulting companies, it seems that certain companies are dominating project tenders. However, due to low contract value, those who win tenders can only have small project profit and this condition in turn results in lack of funding for the development of human resources and consulting business.

4 Towards the Improvement of National Consulting Companies' Competitiveness

It is clear that the Indonesian government's involvement to improve the competitiveness of national consulting companies is still very much needed. Based on secondary data analysis, questionnaire survey evaluation and focus group discussion results, short-term and long-term policy development to improve consulting companies and engineers' competitiveness are recommended.

In the short term, the government is expected to carry out the following activities:

a. Issuing a policy to improve billing rates and owner's estimates, a segmentation policy of advocacy towards small consulting companies, a policy on partnership between small and big consulting companies as well as between central and local consulting companies to improve the capacity and to protect local companies;
b. Increasing the government's nurturing role (in company management development and engineers training, financial support, business guarantees, etc.);
c. Increasing the professional associations' role in members' competency and professional ethics improvement;
d. Completing the e-tendering infrastructure and guaranteeing a good execution mechanism;
e. Improving or increasing government employee's income.

Meanwhile, in the long term the government is expected to conduct the following activities:

a. Improving good governance through a bureaucracy reform program, law enforcement, and merit system set up among stakeholders, employees of the Ministry of Public Works, and the Construction Service Development Board (CSDB);
b. Rearranging the consulting company certification system by, among others, integrating registration and licensing, and making certification of consulting companies voluntary;
c. Rearranging the engineers' certification system by implementing the Engineers Act separately from construction service regulation, and establishing a Board of Engineers.

5 Conclusion

Attention should be focused on creating a healthier and consequently more attractive consulting services environment in Indonesia. A more attractive environment could overcome the shortage of high-quality consulting companies and professional engineers. More qualified and talented graduates would thus be more interested to work in public works projects.

Enhancement of good governance in the construction services development seems to be the basic key to competitiveness. Transparency in consulting services procurement still has to be ameliorated. An appropriate electronic procurement system has to be created in selecting consultant companies.

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